

What influences safety in EMS?

Investigating stress, fatigue, and safety outcomes

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Introduction

Extant research has linked fatigue to safety-related outcomes in EMS personnel. Fatigue has been tied to an increased risk of negative safety outcomes. These outcomes include paramedic injury, behaviors that may compromise patient and provider safety, and adverse events/medical errors.

The relationship between fatigue and safety related outcomes has yet to be tested in relation to other types of workplace stress, including:

- Organizational stress
(the stress of working in a particular organization)
- Operational stress
(stress associated with working in EMS services),
- Critical incident stress
(stress associated with patient care),
- Post-traumatic stress symptomatology (PTSS).

Objective

The purpose of this study was to assess the influence of a multiplicity of workplace stressors and fatigue on safety outcomes.

Methods

An online survey was conducted with ten EMS services with a 40.5% response rate (n= 717). Using validated instruments, respondents reported levels of operational and organizational chronic stress, critical incident stress, post-traumatic stress symptomatology (PTSS), fatigue, safety outcomes and demographic characteristics. ANCOVA analyses were used to assess for significant differences.

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Results

In this sample, in the last three months...

54.9% paramedics reported being fatigued at work

14.5% paramedics met the clinical cut off for probable PTSD

80.2% paramedics reported some sort of injury or exposure.

95.3% of paramedics reported safety compromising behaviors.

76.4% of paramedics reported adverse events or medication errors.

Injury or exposure was significantly related to:

- Fatigue (p<.02),
- Organizational stress (p<.05)
- Critical incident stress (p<.01)
- Posttraumatic stress (p<.01)
- Paramedic Service (p<.01)

Safety compromising behaviors significantly related to:

- Fatigue (p<.01)
- Organizational stress (p<.01)
- Critical incident stress (p<.01)
- Paramedic Service (p<.05)

Medication errors were significantly related to:

- Fatigue (p=.01)
- Paramedic Service (p<.05)

Conclusion

These findings further illustrate that a host of different stressors may influence safety related behaviors.

These findings point to the need for a holistic focus on fatigue and stress in EMS providers.

Limitations

- Non-experimental design
- Modest response rate
- Not generalizable
- Open to non-response, self report, & recall biases

Implications for Future Research

These results underscore the need for the development and validation of holistic, evidence-based interventions addressing the host of factors that may influence safety for both paramedics and their patients.

To view a summary report of this research, please visit
<https://www1.uwindsor.ca/donnelly/stress-and-safety>